

SECRET

Approved For Release 2005/06/06 : CIA-RDP78B04770A002700030012-8
UNITED STATES GOVERNMENT

Memorandum

TO : Executive Director, NPIC
ATTN: Security Officer

DATE: 14 JUN 1963

FROM : Chief, Physical Security Division, OS

SUBJECT: Internal Communications System in NPIC

REF : NPIC/D-61-63 dated 27 May 1963, Same Subject

The Office of Security has no objection to testing of closed circuit television and other systems of internal communication within the confines of NPIC with the proviso that the material used in the tests is UNCLASSIFIED.

2. A security evaluation will be made of any systems which prove to be practical from a utilitarian standpoint.

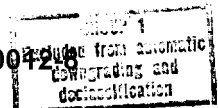
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Attachment:
Memo to Tech Division

Declass Review by NGA.

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MEMORANDUM FOR:

The Director of Security himself has given an initial NO to borrowing or purchasing closed circuit TV for transmission of messages in the building. They will check further.

17 May 63
(DATE)

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7 March 1963

CCTV Briefing

1. Closed circuit television is not always the complete solution to a problem in the transmission of visual information. At times the more common method of the production and distribution of a large number of copies of the information may be more useful and more economical. Before a closed circuit television system can be planned it is necessary that the user's problem can be solved only by the use of television or that the time element justifies the expense of television. The potential user must also understand the limitations of television as well as its capabilities.

2. Some of the problems that may be solved by the application of closed circuit television are:

a. Briefing of personnel who are located at a relatively great distance from the briefer.

b. Coordination between two or more people working on the same or related projects but separated by a relatively great distance.

c. Referral to visual information located at a distance from the requester.

d. Surveillance of area within and surrounding a sensitive installation.

3. To establish some sort of familiar reference we will use the American commercial broadcast television system. Broadcast television has been standardized at 525 horizontal lines per frame and at the rate of 30 frames per second. At this point it is necessary to mention two facts about the use of the word

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"line" in television. A television "line" is not related to a distance as is the optical term "lines per millimeter", and, a TV line is a single line or element instead of the pair of lines used in optical terminology.

4. Only about 490 of the 525 TV lines will appear on the screen of a monitor or home television receiver. The time required for the remaining 35 TV lines is used for the transmission of various synchronizing pulses. The average horizontal scan line displayed on the screen has a definition of about 350 TV lines or elements over its length. This is not, by our standards, a high quality image, although the image on the average 525 line closed circuit TV system monitor has far more quality than you see on a home television receiver.

5. Although the 525 line system is the nationwide standard for commercial broadcast television, there is no standard line scan rate for a high definition closed circuit system. Equipment is available with scan rates varying from 600 to 1035 lines per frame. Equipment designed to operate at one scan rate is not compatible with equipment designed to operate at another scan rate.

25X1 6. As an example of high definition closed circuit TV equipment, the [redacted] is now selling a system with a 1029 line scan rate. The [redacted] claims a horizontal resolution of better than 1000 TV lines. This may not seem to be much of an increase in definition but, to have twice as much definition in both the vertical and horizontal dimensions of the image, it is necessary to be able to process and transmit four times as much information in a fixed period of time. The total amount of definition which can be obtained is limited by the electronic components in the television equipment. [redacted] in developing an

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electronic image enhancer for Navy PIC, was able to provide a 2000 line system only by reducing the number of frames, or complete images, from the standard rate of 30 per second to 15 frames per second. This has resulted in a noticeable flicker in the image.

7. Even a small increase in definition can result in a large increase in the original cost of the TV equipment. The following cost data is for [] closed circuit TV equipment without lenses, remote control device, transmission cables, tripods, installation, etc. The very simplest 600 line system, consisting of one camera and one monitor, would cost about [] The same amount of equipment, one camera and one monitor, for a 1029 line system would cost about [] or about thirteen times as much.

8. A more complex 600 line system consisting of three cameras, six monitors, and a means for switching any one of the three cameras to all six monitors would cost about [] The same amount of equipment for a 1029 line system would cost about [] or about nine times as much.

9. These prices may seem out of proportion to the small gain in definition, but the [] equipment may have features not found in other makes and the prices were not obtained as a result of competitive bidding.

10. The annual operating costs of a closed circuit television system is usually estimated at about 30% of the cost of the small receiving type vacuum tubes plus the cost of the camera pickup tube. A 1" vidicon tube costs about [] dollars and normally has a warranted life of 500 hours. With reasonable care this type of tube may have a life of 5000 hours. The [] 1029 line system uses a 1½" vidicon tube. While I do not know the cost of such a tube it would probably be in the neighborhood of []

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11. From the security viewpoint, closed circuit television presents many problems, the greatest of which is the lack of sufficient information. In a commercial broadcast TV station a piece of equipment, such as a camera or an amplifier, may radiate a signal which is strong enough to interfere with other equipment in the station. When the maintenance personnel have decreased the strength of the signal to a level where it no longer ~~causes~~ ^{causes} interference, they are satisfied. The radiated signal may, however, be strong enough to be detected even at a distance, by more sensitive equipment. The problem is a matter of relative values, that is; the strength of the radiated signal at its point of origin; the attenuation, or decrease in strength, as the signal travels over a distance; and the sensitivity of the detection device. Reliable information can be obtained only ~~by~~ tests on actual equipment by our own personnel.

12. Another security matter is the transmission of visual information over a fairly great distance such as between here and the Headquarters Building. A friend of mine in the Television Branch of the Signal Corps has stated that two companies in Colorado are working on equipment which will encrypt the TV signal for secure transmission. He will return next week from a visit to these companies and will give me a classified briefing on the equipment.

13. To summarize:

- a. At present, the cost-benefit ratio is ~~small~~ ^{high},
- b. No answers are available for security problems,
- c. It is our considered opinion that any video transmission system ~~s~~hould be compatible with electronic viewing and printing equipment when it becomes operational,
- d. Therefore this is not the time to install a high performance closed circuit TV system.

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14. In closing, the Plans and Development Staff will continue to study closed circuit television in terms of what it can do for the Center, the availability of high-definition shelf items and the development of even higher definition systems by industry.